Computerized Numerical Control Programming

Engineering, Math and Physical Sciences Division
Room T302, (847) 543-2044

Computerized Numerical Control Programming
(Associate in Applied Science) Plan 24NA

The Computerized Numerical Control program is designed to provide knowledge and skills needed for employment and advancement in the field of CNC Programming. Programming emphasis is on FANUC and HAAS CNC controlled lathes, milling machines and Wire EDM. Advanced placement in the program may be arranged for experienced programmers and operators. The CNC program is accredited by the National Institute for Metalworking Skills (NIMS) and national credentialing is available. Upon completion of certain courses, students will be prepared to take credentialing exams for an additional fee. To complete an A.A.S., students must meet the General Requirements on page 121. In addition, students should select General Education electives (*) from those listed on page 122. All course prerequisites must be met.

Required General Education Coursework ..........................15
CMM 111 Communication Skills ....................................3
ECO 110 Economics for Business and Industry ........3
ENG 120 Technical Composition I or ENG 121 English Composition I ................................3
MTH 115 Applied Mathematics II ....................................3
Humanities or Fine Arts Elective* ................3

Required Phase I Coursework ..............................................9
CNC 110 CNC Operations I ...........................................3
EGR 121 Engineering Graphics .....................................3
MTT 111 Machine Shop I or MTT 112 Machine Shop Principles ..........3

Required Phase II Coursework ...........................................10
CAD 117 Introduction to AutoCAD ..................................3
CNC 111 Geometric Dimensioning and Tolerancing..1
CNC 115 CNC Programming I .......................................3
MTT 211 Jig and Fixture Design ....................................3

Required Phase III Coursework .........................................9
CAD 170 Introduction to SolidWorks or
CAD 171 Introduction to Inventor or
CNC 177 Introduction to Creo ..................................3
CNC 215 Advanced Mill Programming .................3
Technical Elective ........................................3

Required Phase IV Coursework ......................................15-16
CNC 216 Advanced Lathe Programming ..................3
CNC 217 Introduction to Wire EDM Machining or
EWE 220 Cooperative Work Experience I ........2-3
EWE 120 Job Readiness Skills ..................................1
CNC 218 Introduction to Master CAM ..................3
CNC 250 Advanced Manufacturing .....................3
Technical Elective ........................................3

Additional Required Coursework .................................6
MET 111 Technical Mathematics I ............................3
Social Science Elective* ................................3

Total Hours for A.A.S. Degree .......................64-65

Technical Electives
Select six hours from the list below. Approval of technical electives must be obtained from the program advisor.

CAD 270 SolidWorks II ............................................3
CAD 276 Creo II ..................................................3
CNC 210 CNC Operations II ................................3
CNC 299 Special Topics: CNC Machining Tech 1-4
LPO 112 Elements of Photonics .............................3
LPO 111 Fundamentals of Light and Lasers ........4
LPO 113 Photonics-Enabled Technologies ............3
MET 111 Manufacturing Processes ..........................3
MET 112 Basic Metallurgy I ..................................3
MET 116 Machine Components and Repair ........3
MET 118 Machinery's Handbook ......................3
MET 131 Introduction to Robotics ....................3
MET 214 Mechanical Design and Drafting ............3
MTT 111 Machine Shop I ...................................3
MTT 115 Introduction to Die Making ..................3
MTT 116 Introduction to Moldmaking ..................3
MTT 210 Machine Shop II ..................................3
MFG 210 Manufacturing Materials ....................3
WLD 170 General Welding ..................................3
CNC Programming/Operations  
(Certificate) Plan 24NG

This certificate program provides knowledge and skills needed for entry level employment in CNC programming operating. Students will perform operations and programming on FANUC and HAAS CNC controlled machine tools. Advanced placement and NiMS credentialing may be arranged for experienced machinists.

Phase I ..............................................................................12
CNC  110   CNC Operations I ..........................................3
EGR  121   Engineering Graphics ....................................3
MTT  115   Applied Mathematics II .................................3
Phase II ..............................................................................12
CNC  115   CNC Programming I ......................................3
CNC  210   CNC Operations II ..........................................3
ENG  120   Technical Composition I  
or
ENG  121   English Composition I ....................................3
MTT  211   Jig and Fixture Design ..................................3
Phase III ..............................................................................6
CNC  215   Advanced Mill Programming  
or
CNC  216   Advanced Lathe Programming ......................3
CNC  217   Introduction to Wire EDM Machining ..........3
Total Hours for Certificate ................................................30

Gainful Employment Information: www.clcillinois.edu/gecnc

NIMS Level 1 CNC Operator/Setup Technician  
(Certificate) Plan 24NH

This certificate program provides the knowledge, skills, and abilities for entry level employment in the field of Computerized Numerical Control (CNC) machining as a CNC Mill or Lathe Operator. Students will learn basic blueprint reading, metal cutting principles and tools, and the operation of modern FANUC and HAAS CNC controlled vertical machining centers and turning centers. Each student will be required to demonstrate competency based on the National Institute for Metalworking Skills (NIMS) nationally validated skill standards. Lectures and lab time will focus on the interpersonal, technical, and employment skills necessary to succeed in the trade. Testing for the following NIMS Level I credentials will be administered during the coursework in which the student will be required to complete both a performance test (producing precision parts on the machines) and/or a related theory exam: (1) Measurement, Materials and Safety, (2) Job Planning, Benchwork, and Layout, (3) CNC Milling: Operations, (4) CNC Turning: Operations, (5) CNC Milling: Programming, Setup, and Operations, and (6) CNC Turning: Programming, Setup, and Operations. Credit hour change pending ICCB approval.

Phase I ..............................................................9
CNC  110   CNC Operations I ......................................3
MTT  110   Machine Trades Blueprint Reading ..............3
MTT  112   Machining Principles ................................3
Phase II .............................................................8-11
CNC  115   CNC Programming I ..................................3
CNC  210   CNC Operations II ......................................3
EWE  120   Job Readiness Skills ....................................1
EWE  220   Cooperative Work Experience I ..............1-4
Total Hours for Certificate ............................................17-20

NIMS Level 1 CNC Operator  
(Certificate) Plan 24NJ

This certificate provides the knowledge, skills, and abilities for entry level employment in the field of CNC machining as a CNC Mill or Lathe Operator. Students will learn the operations of a modern FANUC and HAAS CNC controlled vertical machining center and turning center. Each student will be required to demonstrate competency based on the National Institute for Metalworking Skills (NIMS) nationally validated skill standards. Lectures and lab time will focus on the interpersonal, technical, and employment skills necessary to succeed in the trade. Testing for the Level 1 NIMS CNC Mill Operator and Lathe Operator credential will be administered during the coursework in which the student will be required to complete both a performance test (producing precision parts on the machines) and a related theory exam.

CNC  110   CNC Operations I ......................................3
MTT  110   Machine Trades Blueprint Reading ..............3
MTT  112   Machining Principles ................................3
Total Hours for Certificate ..................................................9

For more information on recommended courses or program specific advising, contact faculty member Jeff Hines or the Engineering, Math and Physical Science division at (847) 543-2044